a polymeric organic material, such as PPV (poly-p-phenylenevinylene) is preferably used.

Between the cathodes, for the first cathode 5, as described above, a material having a work function of 3.0 eV or less is used. As the cathode material mentioned above, in particular, Ca is preferably used. Specifically, Ca is preferable since a low threshold voltage because of the low work function and a high transmittance because of the low reflectance for visible light can be realized. The thickness of the first cathode described above is preferably from 50 to 80 angstroms, and more preferably, from 55 to 65 angstroms. When the thickness is less than 50 angstroms, due to the influence of the work function of the second cathode 6, which is an upper layer, there may be a risk in that the threshold voltage of the device is increased. In addition, when it is 80 angstroms or more, there may be a risk in that the transmittance is significantly decreased. In particular, in the case in which Ca is used, since Ca has absorption over almost the entire visible wavelength region, when the thickness thereof is excessively large, black tone becomes significant throughout the cathode side. In particular, when the Ca film has a thickness of approximately 80 angstroms, it is believed that a continuous film is formed having a certain level of thickness such that electrical conductance can be achieved. From this point of view, it is also preferable that the thickness of the first cathode be 80 angstroms or less. In addition, as the cathode, Au may also be used.

The first cathode described above can be formed by vacuum

deposition at a degree of vacuum of, for example, 1×10^{-6} torr or more.

In addition, between the cathodes, for the second cathode 6, a material having a work function higher than that of the first cathode 5 is used. As a material therefor, a material, which has a work function not significantly higher than that of a material for the first cathode, has a certain level of stability to oxygen, and can easily form a continuous film, is preferably used. There may be mentioned, in particular, Al and Ag.

In particular, when Ca is used for the first cathode, it is preferable that Al or the like be used as a material for the second cathode. The thickness of the second cathode described above is preferably set to be 10 to 20 angstroms, and more preferably, is set to be 10 angstroms. When it is less than 10 angstroms, electrical conductance cannot be obtained, and in addition, when it is more than 20 angstroms, there may be a risk in that the transmittance is significantly decreased by metal reflection of the material (particularly, a metal material) itself for the second cathode.

In the present invention, as described above, by forming a layer composed of a material having a low work function (3.0 eV or less) as the first cathode and by forming a layer, which is a continuous layer and has a work function higher than that described above, on the first cathode as the second cathode, the degradation of the first cathode is prevented, and in addition, since the total thickness of the first cathode and the second cathode, which form the stacked structure, is formed so as to be 100 angstroms or less, the light transmission

characteristics at the cathode side is ensured.

As a method for forming the stacked structure of the cathodes described above, it is preferable that after the first cathode is formed by deposition, it be confirmed that the degree of vacuum reaches a level approximately equivalent to that at which the first cathode is deposited, and the second cathode be then formed under conditions similar to those for the first cathode.

As the first sealing layer 7, for example, LiF, SiO, or SiO_2 is used. In particular, since a film of LiF can be easily formed by a vacuum deposition method, the device can be formed without being exposed in the air from the film formation of the cathode to a subsequent series of operations in an inert atmosphere, and in addition, since the material itself contains no oxygen atom, conditions containing oxygen at a nearly zero concentration thereof can be maintained. Furthermore, the transmittance in the visible light region is also high, and the transmission characteristics are not degraded. The thickness and the deposition rate are set to be 300 to 500 angstroms and 8 angstroms/sec or more, respectively. When the thickness is less than 300 angstroms, it is difficult to protect the cathode, which is a lower layer, against water and oxygen from the outside air and the infiltration of water and air from the second sealing layer 8, which is an upper layer, by sealing. In addition, when the thickness of the film is more than 500 angstroms, the device (in many cases, light-emitting layer) is damaged by heat radiation during deposition, and hence, there may be a risk in that the intrinsic EL light-emitting characteristics are damaged. Furthermore,